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Modular Protection System Conversion Kit

INSTALLATION MANUAL

Bulletin 1406 to Bulletin 825 Plus

ALLEN-BRADLEY • ROCKWELL SOFTWARE

Rockwell Automation

Important User Information

Read this document and the documents listed in the Additional Resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

	WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
	ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

Labels may also be on or inside the equipment to provide specific precautions.

	SHOCK HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
	BURN HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.
	ARC FLASH HAZARD: Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

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Introduction

Overview

This manual describes the installation of the Bulletin 825 Plus Conversion Kit within a typical medium voltage (MV) controller. Simple troubleshooting is also included.

Although this manual outlines the implementation within a medium voltage controller, the basic philosophy also applies for installation within any voltage controller where a Bulletin 1406 has been used. To use this manual effectively, you must be familiar with electrical procedures and terminology.

IMPORTANT For setup, programming, and operation information on the Bulletin 825-P Modular Protection System for Motors, refer to Publication 825-UM004_-EN-P.

ATTENTION Rockwell Automation reserves the right to adapt the products described in this manual, at any time, to suit the latest technical developments. Accordingly, attached information is not an object of the contract and thus may change without notification.

Prerequisite for proper operation is correct transport, proper and competent storage and installation, as well as careful operation and maintenance.

1. The power supply must be switched off prior to any intervention in the electrical or mechanical part of the equipment.
2. In accordance with the applicable rules, work on electrical equipment or means of production may only be carried out by competent electricians or suitably trained persons guided and supervised by a competent electrician.
3. The electrical equipment of a machine / plant must be inspected / tested. Deficiencies such as loose connections or scorched cables must be eliminated immediately.
4. The described control and protection system, 825 Plus, provides starting and stopping functions for a motor.

ATTENTION In case of electrical or mechanical faults, the machine must be switched off and protected immediately. The elimination of disturbances must be organized without delay. Failure to do so may result in personal injury and/or damage to the equipment.

Overview (cont.)

ATTENTION

The elimination of a disturbance may cause the motor to start running again by itself. This may endanger persons or damage equipment. The user must take the necessary safety measures to protect against this type of occurrence so that any danger is avoided.

Kit Highlights and Limitations

The Bulletin 1406 to Bulletin 825 Plus Conversion Kit provides most of the features and functionality of the Bulletin 1406. However, the Conversion Kit also provides additional features and functions not provided/supported by the Bulletin 1406.

The Bulletin 825 Plus Conversion Kit provides:

- easy installation
- modular design
- no additional wiring
- uses existing low voltage door and panels (in most cases)
- various communication methods: ❷
  - DeviceNet ™ ❶
  - Modbus ™ ❶
- (12) RTD inputs with remote RTD Scanner (optional)
- programmable analog output

❶ Option card required.

❷ Does not support interconnection method used by the Bulletin 1406-P and 1406-AA.

Note: The user must validate the control and protection capabilities of the 825 Plus.

Personnel Safety

Protection of personnel in the vicinity of control equipment is of primary importance. The corresponding requirements of regulatory agencies are therefore becoming increasingly severe. The Bulletin 825 Plus reflects this by providing the following protection:

- Equipment construction:
  - Touch protection
  - Insulated housing
- Motor protective functions:
  - Earth (ground) fault
  - High overload, stalling and jam
  - Phase reversal

Equipment Description

Overview

This chapter describes the features of the Bulletin 1406 to Bulletin 825 Plus Conversion Kit.

Operational Requirements

Monitoring application parameters and process data of an installation is very important. Even a slight change in the starting and operating behavior of the motor can indicate an impending fault. The Bulletin 825 Plus helps eliminate the potential trouble before major repairs are necessary and loss of production occurs.

The Bulletin 825 Plus fulfills these requirements by providing the following protective functions:
- High overload, stalling
- Underloading
- Wrong direction of rotation

However, the Bulletin 825 Plus functionality does not directly correspond to the Bulletin 1406. Below is a summary of some of the features offered by the Bulletin 825 Plus. In most cases the 825 Plus provides improved and additional features/protection.

Function Description	Bul. 1406 Parameters	Bul. 825 Plus Parameters
Current Transformer (Primary)	25A – 1500A (rating)	0.5 A – 5000 A
Full Load Current (FLC)	15A – 800A	0.5 A – 5000 A
Thermal Overload Protection	Yes	Yes
Overcurrent Protection	No	Yes
Allowable Acceleration Time	5s – 60s	1s – 240s
Allowable RTD types	10 Ω Cu, 100 Ω Pl, 100 Ω Ni, 120 Ω Ni	10 Ω Cu, 100 Ω Pl, 100 Ω Ni, 120 Ω Ni
Number of Winding RTDs	1 – 6	1 – 12 ❷
Number of Bearing RTDs	1 – 2	1 – 12 ❷
Allowable Number of Starts	1 – 10 (specified time increments)	1 – 15 (starts per hour)
Phase Unbalance Trip Current	5 – 30 (percent of FLC)	5 – 80 (percent of FLC)
Phase Unbalance Alarm Current	–	5 – 80 (percent of FLC)
Phase Reversal Protection	Yes ❶ Ye	s

❶ Features require additional 1406-S option card.
❷ Total of twelve (12) inputs for winding, bearing or other RTD.

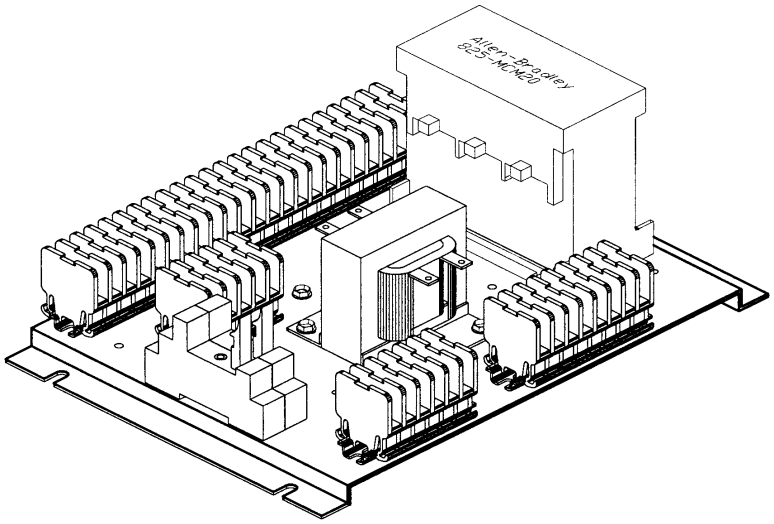
Operational Requirements (cont.)

Function Description	Bul. 1406 Parameters	Bul. 825 Plus Parameters
Jam Protection	Yes	Yes
Undervoltage Protection	Yes ❶ Ye	s
Ground Fault Alarm Current	1A – 25A	0.01 – 25A
Ground Fault Trip Current	1A – 25A	0.25A – 25A
Ground Fault Trip Time	10 ms – 1 s	0 – 5s
Short Circuit Protection	No	Yes
Jam Trip Current	2-10 (multiple of FLC)	1-6 (multiple of FLC)
Underload Trip Current	50 – 90 (percent of FLC)	10 – 100 (percent of FLC)
Underload Trip Time Delay	1s – 10s	0 – 120s
Ultimate Trip Current	100 – 125 (percent of FLC)	4 – 12 (multiple of FLC)
Winding Alarm Temperature	20°C – 180 °C	0 – 250°C
Winding Trip Temperature	20°C –180°C 0	– 250°C
Bearing Alarm Temperature	20°C –180°C 0	– 250°C
Bearing Trip Temperature	20°C –180°C	0 – 250°C
Ambient Temperature Sensor Input	No	Yes
Reset Condition	Auto/Manual	Auto/Manual
Speed Switch Input	Yes	Yes ❷
Analog Output	No	Yes
Communication P	LC only	DeviceNet, Remote I/O, PROFIBUS, Modbus
Trip Contacts	2 form-C contacts (fail safe)	2 form-C contacts (fail safe)
Alarm Contacts	2 form-C contacts (fail safe)	2 form-C contacts (fail safe)

❶ Feature requires additional 1406-S option card.

❷ An additional voltage transformer is required. Refer to Technical Data in Appendix B of this manual.

Ordering Information



Conversion Kit Numbers

Description	Electrical Drawing Numbers	Catalog Number
Standard Conversion Kit	80113-650-71	825PK1-BDVXXC
Standard Kit with DeviceNet	80113-650-72	825PK1-BDVDXC
Standard Kit with Modbus	80113-650-73	825PK1-BDVMXC
Standard Kit with RTDs	80113-650-74	825PK1-BDVXPC
Standard Kit with RTDs and DeviceNet	80113-650-75	825PK1-BDVDPC
Standard Kit with RTDs and Modbus	80113-650-76	825PK1-BDVMPC

NOTE: When ordering a conversion kit with the RTD option, refer to the 825 Plus RTD Scanner Interface Installation Guide (Appendix C) for additional information.

Catalog Number Breakdown

Part	Part Description	Part Number
Standard Conversion Kit	Mounting Bezel (ANSI 49)	80185-279-05
	Mounting Bezel (ANSI 61)	80185-279-06
	Cutout Cover (ANSI 49)	80185-316-02
	Cutout Cover (ANSI 61)	80185-316-03
	Base 825 Plus Relay	825-PD
	825 Plus I/O Card	825-PIOD
	825 Plus Voltage Card	825-PVS
	1406 to 825P Interface Panel Assembly	80185-323-52
with DeviceNet	825 Plus DeviceNet Card	825-PDN
with Modbus	825 Plus Modbus RTU Card	825-PMB
wi th RTDs	825 Plus RTD Scanner	825-PR12D
	RTD Scanner Mounting Assembly	80185-329-52
	Fiber Optic Cable	80026-385-02

Unpacking and Storage

Overview

This chapter describes the procedures for unpacking, inspecting, and storing the Bulletin 1406 to Bulletin 825 Plus Conversion Kit.

Unpacking Your Kit

As you unpack the conversion kit, follow the steps listed below:

1. Handle each component carefully to avoid damage.
2. Unpack the box(es) enough to inspect the shipment for missing or damaged equipment.
3. In the event that a component is missing, damaged, or shows evidence of rough handling, THE BUYER SHALL NOTE SUCH ON THE CARRIER'S DELIVERY RECEIPT and immediately notify the carrier.

IMPORTANT Save all packaging material for the insurance company inspection.

4. If the above conditions are not complied with, any right to recovery for missing or damaged components as described above may be forfeited.
5. Make sure that the components received are correct based on what was ordered.

Storage

If the Conversion Kit will be stored for any length of time, the following precautions should be taken:

1. The ambient temperature must be between -40°C to +60°C (-40°F to 140°F).
2. If the storage area is damp and/or cool, it is important to dry the Conversion Kit out in a warm, dry environment before using. Also, clean all terminals to help provide integrity of the electrical connections.
3. Cover the Conversion Kit with a heavy plastic or similar material to help prevent the accumulation of dirt on the equipment.

IMPORTANT For storage in harsh or caustic environments, consult a Rockwell Automation representative.

Installation

Overview

This chapter describes the procedures for the installation of the Bulletin 1406 to Bulletin 825 Plus Conversion Kit within a medium voltage controller.

Installation within other controller types can also be accomplished by following the principal philosophy of the retrofit described.

IMPORTANT This manual is intended for use by personnel trained and familiar with medium voltage, solid-state power equipment, and general industrial controls.

Pre-installation

ATTENTION

To avoid shock hazards, lock out incoming power before working on the equipment. Verify with a hot stick or appropriate voltage measuring device that all circuits are voltage free. Failure to do so may result in severe burns, injury or death.

ATTENTION

The National Electrical Code (NEC) and/or Canadian Electrical Code (CEC) or other local codes outline provisions for safely installing electrical equipment Failure to follow locally applicable codes can result in hazards to personnel or a non-compliant installation.

Tools required:

- Sheet metal cutting tools capable of cutting up to 12 gauge material
- Hand drill, and drill bits
- Screw drivers
- Allen-key wrench set
- Drop sheets or tarp

ATTENTION

The following pictures shown are illustrating a common controller layout. These pictures may not necessarily illustrate the exact equipment on which this kit is being installed. The pictures should be used as a general basis only.

825 Plus Interface Panel

Figure 4.1

ATTENTION Disconnect and lockout all sources of power entering the low voltage compartment where the 1406-P16 is located. This may include opening the main disconnect isolation switch. Failure to disconnect and lock out power can result in personal injury and/or damage to the equipment.

1. Disconnect the control wires connected to the 1406-P16. Using the wire number table in Appendix A, mark each wire with the corresponding 1406 terminal block number for reference later in the procedure.

2. Remove the 1406-P16 module from the low voltage panel. Save all the mounting hardware. *(Figure 4.1)*

3. Use the saved mounting hardware from the previous step to mount the 825 Plus Interface Panel in the same location the 1406 occupied. *(Figure 4.2)*

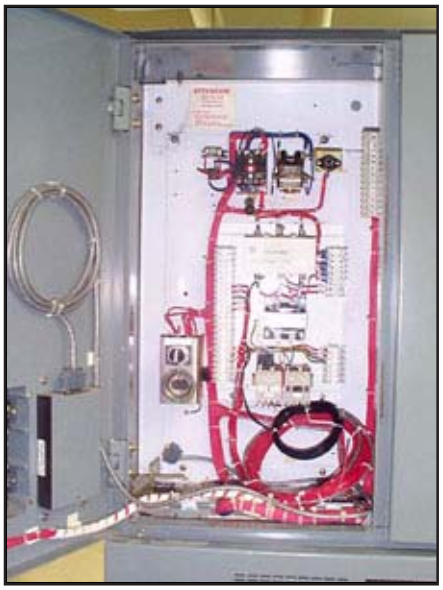


Figure 4.2

IMPORTANT If a 1406-R16 RTD module was used with the 1406-P16, the RTD module must also be removed. The RTD wiring to the old 1406 RTD module must be rewired to the 825 Plus RTD Panel. Refer to the 825 Plus RTD Panel Installation Guide (Appendix C). Handle existing wiring with care. Replace any damaged or worn wiring.

Door Cover

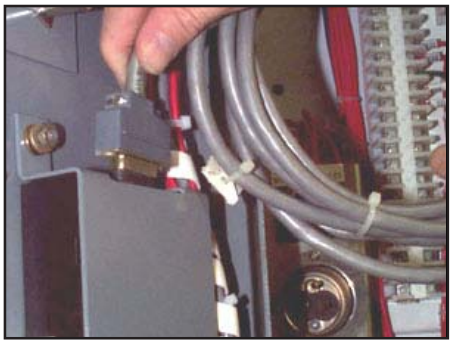


Figure 4.3

1. Disconnect and remove the communication cable from 1406 programming module, located on the low voltage door. *(Figure 4.3)*

2. Remove the 1406 programming module from the low voltage door. Save the mounting hardware for use later in the installation process. *(Figure 4.4)*

3. Use the saved hardware to mount the 1406 door filler cover supplied with the conversion kit. Ensure that the correct colored door filler cover is used. The 825 Plus Conversion Kit contains ANSI 49 and 61 colored door filler covers. *(Figures 4.5 and 4.6)*

Figure 4.4

Figure 4.5

Figure 4.6

Removing Low Voltage Door

Figure 4.7

IMPORTANT It is recommended to remove the low voltage doors to facilitate cutting the mounting hole for 825 Plus. The hole can be cut without removing the door if proper tools are used and blankets, drop sheets or tarps are used to prevent drill and saw chips from entering the controller. If you chose to do so, skip to page 4-5 and ignore page 4-7.

Tip: The packing box from the 825 Plus can be used to determine feasibility of a specific mounting location. Tape the box to the rear of the low voltage door to validate the door swing and component interference on the low voltage panel.

Figure 4.8

ATTENTION Failure to check for clearance can result in damage to equipment and/or personal injury.

1. Remove all door-mounted devices. Note wire numbers and locations. It is recommended to create a sketch of the component layout and associated wiring locations. *(Figures 4.7 and 4.8)*

2. Remove the low voltage door hinge pins. Caution must be taken when removing the door. It is recommended that two people remove the door – one person to hold the door and a second person to remove the hinge pins. *(Figure 4.9)*

Figure 4.9

ATTENTION Ensure sufficient personnel are present to safely remove the low voltage door. Failure to do so may result in personal injury and/or damage to the equipment.

Preparing Low Voltage Door for 825 Plus

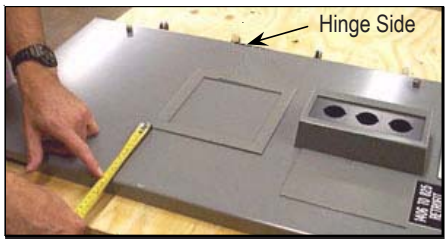


Figure 4.10

Figure 4.11

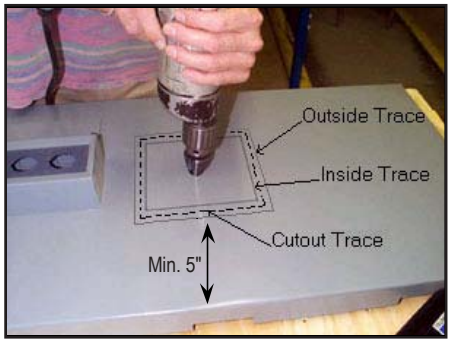


Figure 4.12

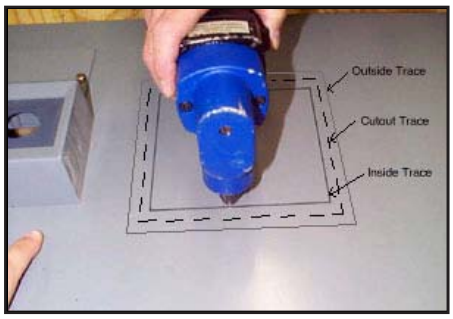


Figure 4.13

1. Once the door has been removed, place the door on a level work surface.
2. Position an 825 Plus Mounting Collar squarely on the low voltage door to locate the required cutout. *(Figure 4.10)*

IMPORTANT Position the 825 Plus cutout on the door properly to ensure that the low voltage door and low voltage panel can swing open without difficulty. It is recommended that the edge of the cutout be positioned at least 5 inches (127 mm) from the unhinged side of the low voltage door, to allow for proper clearance to open the low voltage door with the 825 Plus installed.

3. Using the collar as a template, lightly trace the cutout area on the inside and outside of the collar. This outline represents the minimum and maximum size required by the 825 Plus relay. *(Figure 4.11)*
4. Drill a pilot hole in the center of the traced cutout area. *(Figure 4.12)*
5. Double-check the measurements before cutting. With a cutting tool, cut on the outside edge of the inside cutout trace. *(Figure 4.13)*
6. To ensure the hole is of the correct size, place a mounting collar over the hole. There should be no metal showing on the inside of the collar, and the collar should not pass through the cutout. *(Figure 4.14)*

IMPORTANT Remove all metal chips before mounting the 825 Plus.

ATTENTION Failure to remove all metal chips can result in equipment damage or hazardous operation.

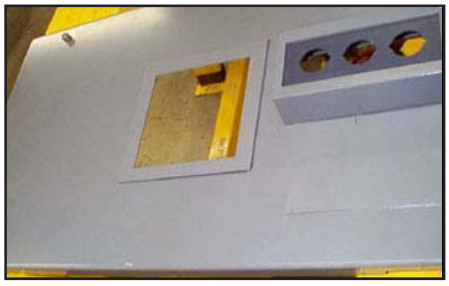


Figure 4.14

Preparing Low Voltage Door for 825 Plus (cont.)

Figure 4.15

1. Mount the 825 Plus through the low voltage door cutout. Remember to place a mounting collar on both sides of the low voltage door. *(Figure 4.15)*

2. Fasten the 825 Plus to the low voltage door using the mounting hardware provided with the 825 Plus.

IMPORTANT Tighten the screws with minimal force. Do not over tighten.

3. Before completely tightening the mounting hardware ensure the 825 Plus is mounted on a level plane both horizontally and vertically. *(Figures 4.16 and 4.17)*

Figure 4.16

Figure 4.17

Re-installing the Low Voltage Door

Figure 4.18

1. Re-install the low voltage door. Caution must be taken when re-installing the door. It is recommended that two people remount the door – one person to hold the door and a second person to replace the hinge pins. *(Figure 4.18)*

ATTENTION

Ensure sufficient personnel are present to safely replace the low voltage door. Failure to do so may result in personal injury and/or damage to the equipment.

2. Remount all door-mounted devices that were removed. *(Figure 4.19)*

Figure 4.19

Wiring the Control Circuit

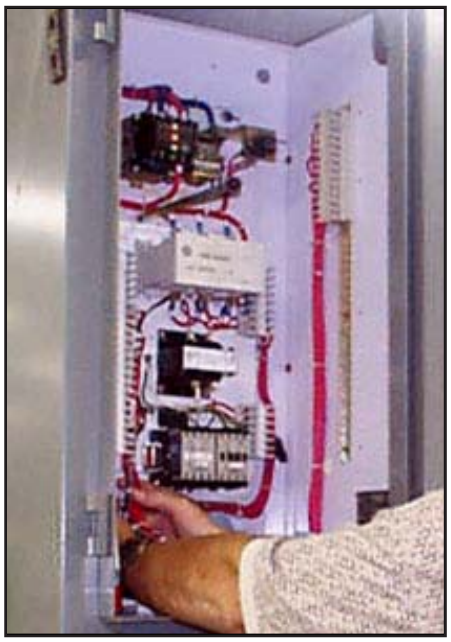


Figure 4.20

1. Reconnect the control wires to the corresponding 825 Plus Interface Panel terminal blocks. These are located and numbered the same as those on the 1406-P16. Use the wire number table (created as part of the procedures on page 4-2) in Appendix A, to verify the wire numbers and the terminal block location. *(Figures 4.20 and 4.21)*

2. Using the provided spiral wrap, combine the existing and new door control wire bundles. *(Figure 4.22)*

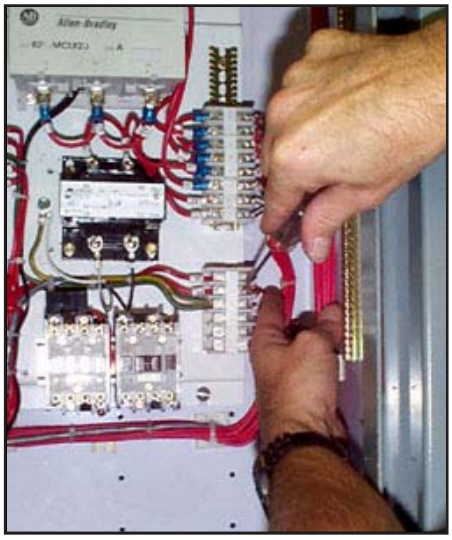


Figure 4.21

Figure 4.22

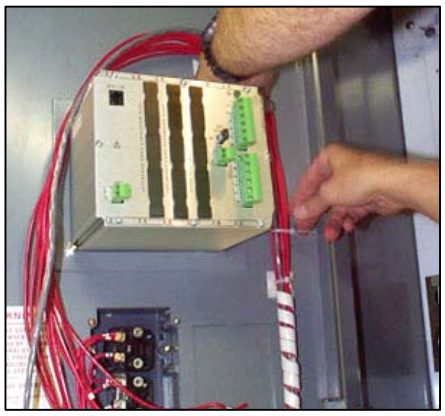


Figure 4.23

3. Route the new wire harness along the low voltage door to the 825 Plus. *(Figure 4.23)*

4. Cut, strip, and connect each numbered wire to the corresponding numbered green 825 Plus terminal plug.

5. Route the black converter module cable along the low voltage door and plug the telephone style connector to the back of the 825 Plus.

IMPORTANT Refer to the supplied wiring diagram during installation of 825 Plus Interface Panel. Refer to the Ordering Information section for Electrical Diagram (ED) drawing number.

6. If the RTD option is used, refer to the 825 Plus RTD Scanner Installation Guide (Appendix C) for additional information.

ATTENTION

Failure to reconnect all wires and cables correctly may result in equipment damage, personal injury and/or death.

Post Installation (Testing)

Figure 4.24

ATTENTION Failure to follow these steps can result in damage to equipment and/or personal injury.

1. Inspect the interior of the enclosure for contamination, loose bolts, tools or metal chips, and vacuum clean if necessary.
2. Account for all the tools used. If a tool or hardware is unaccounted for, do not energize the equipment.
3. Inspect the wiring and the control scheme to ensure proper operation. Extra care should be taken when inspecting the connections for the current transformer and ground fault circuits, to ensure neither circuit is open or short-circuited during power-up.
4. For medium voltage controllers, follow items 5 though 7. For other styles of controllers, the intent of this section is to apply control voltage to the controller circuit, including the 825 Plus.

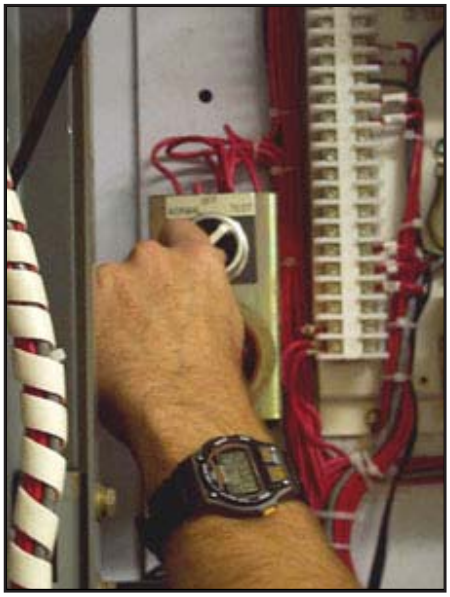


Figure 4.25

5. The isolation switch must be in the fully opened position (the isolation switch handle moved to the OFF/down position).
6. Connect a remote 120VAC external power source to the 'NORMAL-OFF-TEST' (N-O-T) switch assembly test receptacle located in the low voltage compartment. *(Figure 4.24)*
7. Turn the N-O-T selector switch to the TEST position. *(Figure 4.25)*

IMPORTANT With the selector switch in the test position, power will be applied to the control circuit. Additional caution must be taken to prevent accidental contact with the 120VAC.

8. Test the control circuit functionality by electrically operating the contactor (air or vacuum) in test mode *(Figure 4.26)*. This may require the use of test jumpers depending on the control circuit. Refer to original drawings supplied with the equipment.

9. Program the 825 Plus with the correct motor and protection parameters *(Figure 4.27)*.

   Refer to the User Manual publication **825-UM004_-EN-P** included with the 825 Plus for programming instructions.

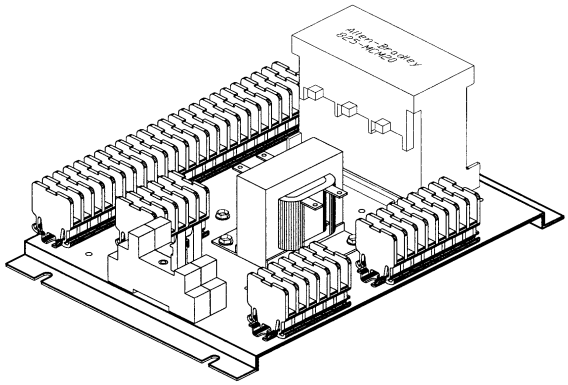
10. Turn test switch to OFF. Return the controller to service by removing any test voltage supply and turning the selector switch back to the "NORMAL" position.

11. Close the low voltage door and tighten down the door screws.

Figure 4.26

Figure 4.27

Bul. 1406-P16 to Bulletin 825 Plus Conversion Kit
Wire Number Table

TB1		TB2	
TB #	**Wire #**	**TB #**	**Wire #**
1		**8**	
2		**7**	
3		**6**	
4		**5**	
5		**4**	
6		**3**	
7		**2**	
8		**1**	
9			
10			
11			
12			
13			
14			
15			
16		**TB3**	
17		**TB #**	Wire #
18		**6**	
19		**5**	
20		**4**	
21		**3**	
22		**2**	
23		**1**	

(Copy As Required.)

Technical Data

825 Plus

Refer to Publication 825-UM004_-EN-P.

Conversion Kit Interface Panel

Description	Specification
Ground Fault Interposing Current Transformer	
Primary 1A	
Secondary 5A	
Operating Frequency	50/60 Hz
Class 600	V
Accuracy	Less than 2% ratio error at 5 VA burden
Primary Impedance	2.5 ohms
Approvals	CSA certified and UL listed
Important: This current transformer is used to step down an existing 50:5 ground fault current transformer. The secondary of this current transformer is connected to the secondary of the existing ground fault current transformer. This results in an equivalent 50:1 ground fault current transformer. This is done to prevent possible damaging current levels for the 825 Plus.	
Voltage Transformer (not provided with the standard kits) (Optional for speed switch appliclations)	
Primary	115 V AC
Secondary	24 V AC @ 60 Hz
Current Rating	85 mA
Class Insulation	105°C
Di-electric Withstand	Hi-Pot test of 2000 V RMS
Approvals	CSA certified and UL listed
Design Type	Dual bobbin design – no electrostatic shield required
Recommended Transformer	M anufacturer: Hammond Manufacturing P art Number: 166C24
Auxiliary Relays (Bulletin 700-HK32A1)	
Temperature	Operating: -30°C to +55°C (-22°F to +131°F) Storage: -55°C to +85°C (-67°F to +185°F)
Enclosure	Transparent Dust Cover
Coil	
Voltage	120 V AC @ 60 Hz
Permissible Coil Voltage Variation	102 V AC to 132 V AC
Power Consumption	± 10% AC – 1.1 VA
Rated Insulation Voltage	250 V IEC; 300 V UL/CSA
Dielectric Withstand Voltage	Pole to Pole (VRMS): 1500 V AC Contact to Coil (VRMS): 1500 V AC
Contacts	
Type	DPDT, 2 Pole, 2 Form C
Material S	ilver Cadmium Oxide (AgCdO)
Mechanical Operations	5×10^6
Switching Frequency Operations	11,800/hr
Rated Thermal Current	5 A
Break Current at 120 V AC	3 A
Make Current at 120 V AC	30 A
Operating Time	P ickup: 15 ms Dropout : 15 ms
Maximum Operating Rate	3 Ops/s

Conversion Kit Interface Panel (cont.)

Description	Specification
Terminals (TB1 and TB3)	
Type	Screw terminal with wire clamp
Approvals	CSA certified and UL listed
Voltage Rating	300 V AC/DC
Maximum Current	25 A
Wire Range	0.5 to 1.5 mm^2 (#22 - #14 AWG)
Wire Strip Length	6.4 mm (0.25 inch)
Recommended Tightening Torque	6-14 lb.-in. (0.7 – 1.6 Nm)
Insulation Temperature Range	-40°C to +105°C (-40°F to +221°F)
Terminals (TB2)	
Type	Screw terminal with #6 screw
Approvals	CSA certified and UL listed
Voltage Rating	600 V AC/DC
Maximum Current	20 A
Wire Range	0.5 to 1.5 mm^2 (#22 - #14 AWG)
Wire Strip Length	Prepared Conductors Only ❶
Recommended Tightening Torque	12 lb.-in. (1.4 Nm)
Insulation Temperature Range	-40°C to +105°C (-40°F to +221°F)

❶ Prepared conductors utilize ring, spade or hook connectors.

Converter Module

Description	Specification
Terminals	
Bulletin 825 plug-in terminals (Range of cross-section)	• 0.5 to 1.5 mm^2 (20 AWG to 14 AWG), single wire • 0.5 to 1.5 mm^2 (20 AWG to 14 AWG), double wire • 0.5 to 1.5 mm^2 (20 AWG to 14 AWG) • Nominal 1.5 mm^2 (.0023 $in.^2$)
Cat. No. 825-MCM5	• 2 x 2.5 mm^2/1 x 4 mm^2 (2 x .0039 in^2/1 x .006 in^2) • 2 x 0.5 to 1.5 mm^2 (20 AWG to 14 AWG) / 1 x 0.5 to 2.5 mm^2 (20 AWG to 12 AWG)

Bulletin 1406-R16 to Bulletin 825P Smart Motor Manager Conversion Kit

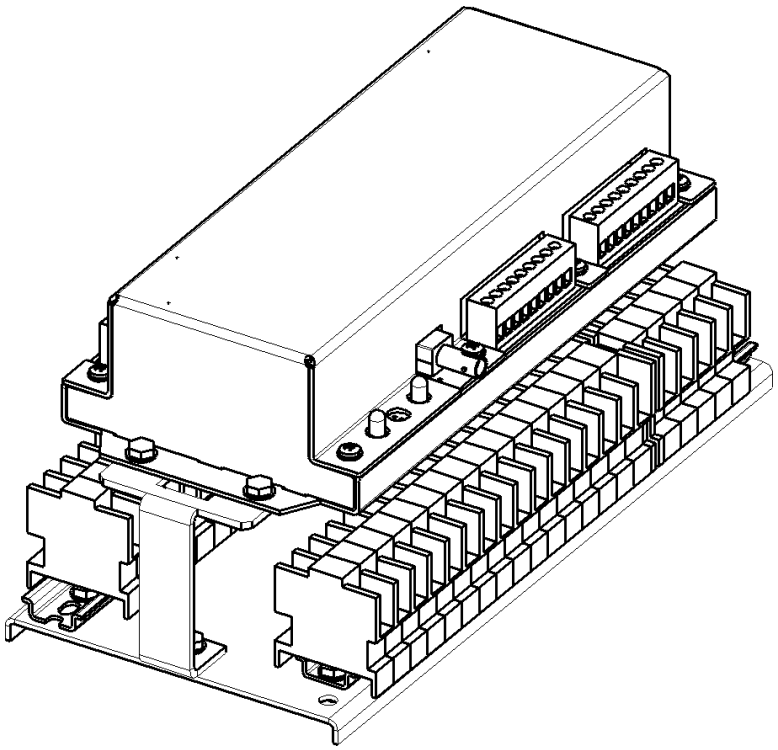
825 Plus RTD Scanner • Installation Guide

Introduction

The 825 Plus RTD panel provides:

- easy installation
- modular design
- (12) configurable RTD inputs
- Fiber-optic communication port to 825 Plus (max. length 500 m)

IMPORTANT The 1406 RTD module provided for eight (8) RTD input, six (6) stator winding RTD inputs, and two (2) bearing RTD inputs. The 825P RTD Panel provides up to 12 RTD inputs for either winding, bearing RTD inputs, and/or other applications.



Installation Instructions

ATTENTION Failure to follow these steps can result in damage to the equipment and/or personal injury.

1. Ensure the RTD wires are disconnected from the 1406 RTD module. Using the wire number table in Appendix C, mark each wire with the corresponding 1406 RTD module terminal block number.

2. Remove the 1406 RTD module from the low voltage panel. Save all the mounting hardware.

3. Using the mounting hardware saved in the previous step, mount the 825 Plus RTD Panel in the location vacated by the 1406 RTD module.

4. Reconnect the RTD wires to the corresponding 825P RTD Panel terminal blocks.

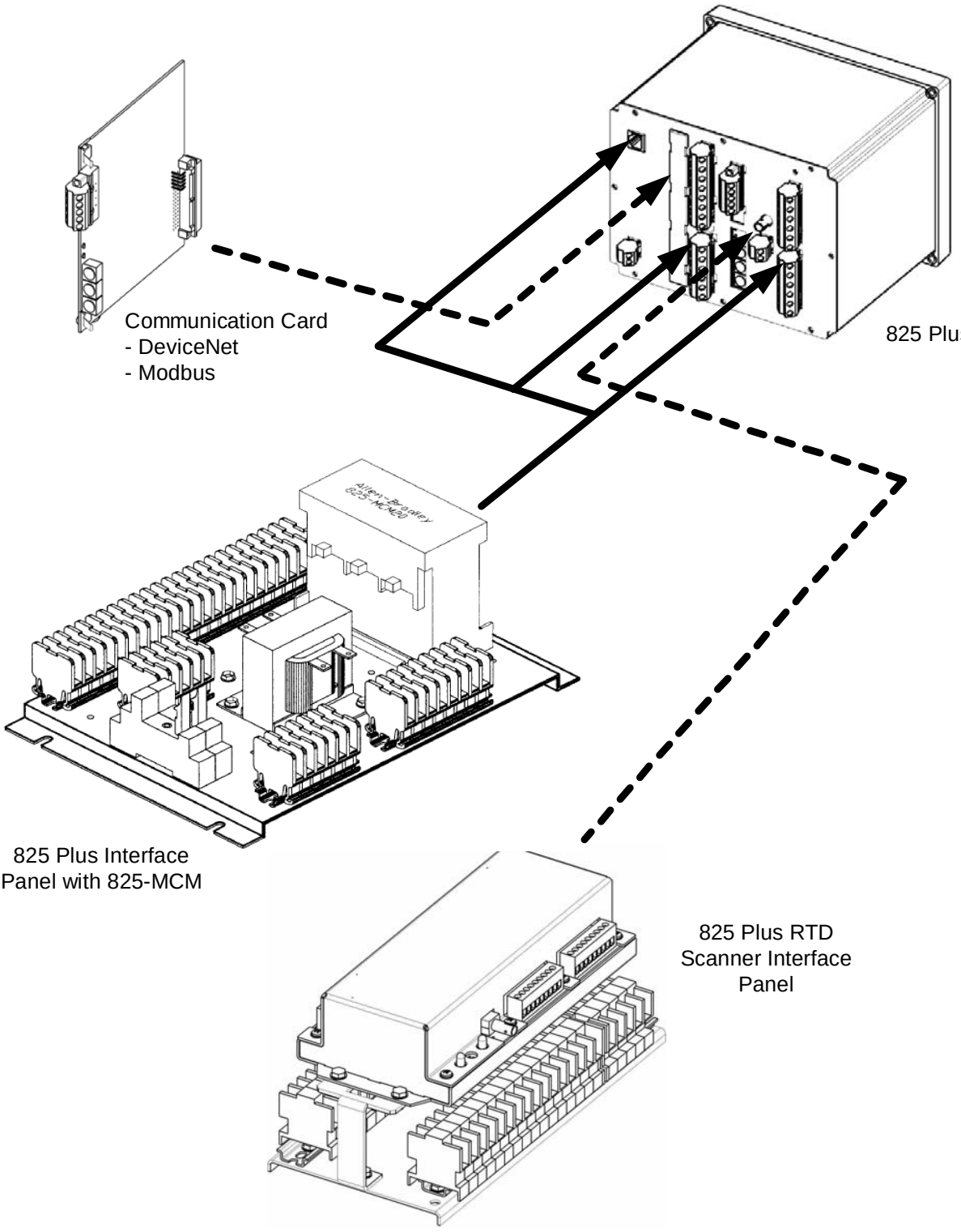
5. Using the spiral wrap provided, combine the existing and RTD Scanner fiber-optic communication link to the back of the 825 Plus.

Bulletin 825 Plus RTD Scanner Interface Conversion Kit
Wire Number Table

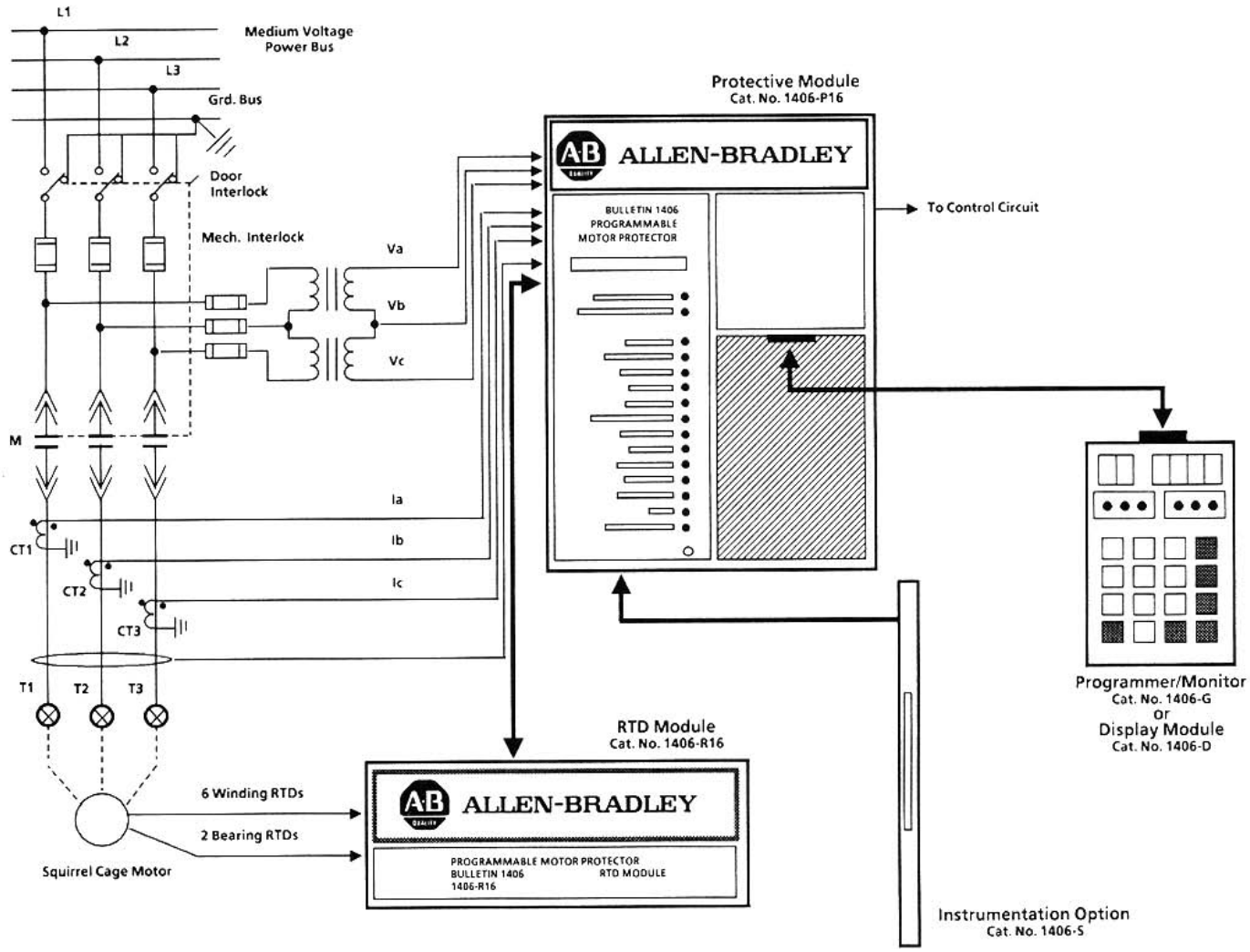
TB3			TB1		
1406 TB #	Wire #	825 Plus RTD Scanner TB #	1406 TB #	Wire #	825 Plus RTD Scanner TB #
1		23	5		—
2		24	4		—
3		26	3		—
		2			—
		1			—
TB4			**TB2**		
1406 TB #	Wire #	825 Plus RTD Scanner TB #	1406 TB #	Wire #	825 Plus RTD Scanner TB #
1		02	16		32
2		02	15		31
3		03	14		30
4		03	13		32
5		04	12		29
6		05	11		28
7		06	10		27
8		06	9		29
9		07	8		18
10		08	7	18	
11		09	6	17	
12		09	5	16	
13		10	4	15	
14		11	3	15	
15		12	2	14	
16		12	1	13	

(Copy as required.)

Bulletin 825 Plus Component Configuration



Bulletin 1406 Product Overview



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